

# QT Quadratic Sequences



1. A quadratic sequence is given by  $U_n = n^2 + 2n - 4$

Write down the first six terms in the sequence.

(2 marks)

2. A quadratic sequence is given by  $U_n = n^2 + 3n$

Write down the first six terms in the sequence.

(2 marks)

3. The  $n$ th term of a sequence is  $3n^2 + 2n - 2$

Work out the 10th term of the sequence

(2 marks)

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4. Here are the first 6 terms of a quadratic sequence

3      6      11      18      27      38

Find an expression, in terms of  $n$ , for the  $n$ th term of this sequence.

(3 marks)

5. Here are the first 5 terms of a quadratic sequence

5      9      17      29      45

Find an expression, in terms of  $n$ , for the  $n$ th term of this sequence.

(3 marks)

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6. Here are the first 6 terms of a quadratic sequence

2      9      22      41      66      97

Find an expression, in terms of  $n$ , for the  $n$ th term of this sequence.

(3 marks)

7. Here are the first 5 terms of a quadratic sequence

18      11      -2      -21      -46 ....

(a) Find an expression, in terms of  $n$ , for the  $n$ th term of this sequence.      (3 marks)

(b) Calculate the 10th term in the sequence.

(1 mark)

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8. A quadratic sequence starts:

-8    2,    16    34 ....

a) Show that the  $n$ th term is  $2n^2 + 4n - 14$

(3 marks)

b) Hence find the term that has the value 112.

(2 marks)

9. a) Calculate the formula for the  $n$ th term of the following sequence:

-2,    -1,    1,    4 ....

(3 marks)

b) Calculate the 10th term in the sequence.

(1 mark)

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10. a) Calculate the formula for the nth term of the following sequence:

19    15    9    1 ...

(3 marks)

b) Calculate the 10th term in the sequence.

(1 mark)

11. The nth term of a sequence is  $n^2 + 2n + 1$

Two consecutive terms in the sequence have a difference of 13.

Work out the two terms.

(3 marks)

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12. Here are some patterns made with square tiles.

- (a) Write an expression, in terms of  $n$ , for the number of tiles needed to make the  $n$ th pattern in this sequence. (3 marks)
- (b) Joe says that one pattern in the sequence is made from exactly 80 tiles. Is Joe correct? Give a reason for your answer. (1 mark)

